Space Weather Forecast

Issued on Thursday, 27 January 2022 at 01:10 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Slight chance G1/Minor Geomagnetic Storm day 2 (28th) and R1 Radio Blackouts.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low with several common class flares, mainly from a sunspot region that has been rotating onto the disc. This appears relatively simple at the moment, but will need a further assessment as it rotates into a clearer view. There are a total of six sunspot regions on the disc, with the most developmental a moderately sized region near the one that has just rotated on, in the northeast disc. This is a bipolar region, with some slight magnetic complexity, but has yet to produce any notable flaring. All other regions are currently smaller and simpler. No Earth-directed coronal mass ejections have been observed in available imagery.

Solar Wind / Geomagnetic Activity: The solar wind has been elevated at around 420-520km/s through the last 24 hours, with some variations that could have been due to the very weak CMEs glancing, however any signal is too weak to confidently identify. The magnetic field has been relatively weak, with the important north-south direction variable, but with some brief periods where it was mainly southward pointed. Geomagnetic activity has been Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was at background with no solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain Low to Very Low. There are six sunspot regions on the visible disc with a slight chance of Moderate flares.

Solar Wind / Geomagnetic Activity: There is one CME on the Earth-Sun line that has been assessed, but currently expected to pass over Earth around 29/0000 UTC, although a glancing impact cannot be ruled out. Ongoing faster winds from a coronal hole are expected to decline day 1 (27th) before the arrival of a further region of fast wind on day 2 (28th). Solar winds are expected to become elevated again, before gradually easing later day 3 and day 4 (29th and 30th). Geomagnetic activity is forecast to Quiet to Unsettled day 1 (28th), increasing to Unsettled to Active with onset of the fast winds of CH47 day 2 (28th) with a slight chance of G1/Minor Storm interval mainly due to any glancing CME impact. Activity then easing to be mainly Quiet to Unsettled by late day 3 and day 4 (29th and 30th).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to remain at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	20	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	15	15	15	15
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2022. All Rights Reserved.